

WHAT IS CLAIMED IS:

1. A substantially non-reflective substrate which provides little fluorescence from about 300 nm to about 700 nm comprising:
 - a phase-inversion support; and
 - a plurality of opaque solids that are substantially chemically non-reactive with the phase inversion support and intimately bound to, and/or partially/completely contained within, said phase-inversion support.
2. A substrate of claim 1 wherein the phase-inversion support comprises polyamides.
3. A substrate of claim 1 wherein the opaque solids are pigments.
4. A substrate of claim 1 wherein the opaque solids are carbon particles.
5. A substrate of claim 1 wherein the phase inversion support has been charge-modified.
6. A substrate of claim 4 wherein carbon particles are less than five microns in size.
7. A substrate of claim 4 wherein the carbon particles are substantially uniformly distributed throughout the polyamide support.
8. A substrate of claim 4 wherein the carbon particles are partially incorporated into the polyamide support.
9. A substrate of claim 4 wherein the carbon particles are substantially wholly incorporated into the polyamide support.
10. A substrate of claim 4 wherein the polyamide has been charge-modified.
11. An optically-passive substrate comprising a phase-inversion support and opaque solids that are substantially non-reactive chemically with the phase inversion support, in a weight ratio with said phase-inversion support such that said optically-passive substrate absorbs light at substantially all wave lengths from about 300 nm to about 700 nm.
12. An optically-passive substrate as recited in claim 11 wherein the phase-inversion support comprises polyamide.
13. An optically-passive substrate as recited in claim 12 wherein the phase-inversion support is in the form of a membrane.
14. An optically-passive substrate as recited in claim 12 wherein the opaque solids are carbon particles.

15. An optically-passive substrate as recited in claim 14 wherein carbon particles are less than about 5 microns in size.

16. A substrate of claim 14 wherein the carbon particles are substantially uniformly distributed throughout the polyamide support.

17. A substrate of claim 14 wherein the carbon particles are partially incorporated into the polyamide support.

18. A substrate of claim 14 wherein the carbon particles are substantially wholly incorporated into the polyamide support.

19. A substrate of claim 14 wherein the polyamide has been charge-modified.

20. A substrate as recited in claim 18 wherein the substrate absorbs light at substantially all wavelengths from about 300 to about 700 nm.

21. A substrate as recited in claim 20 wherein the substrate has a reflectance of no more than 50% of incident light at any wavelength within said range of wavelengths.

22. A substrate as recited in claim 11 wherein the phase-inversion support is hydrophilic.

23. A substrate as recited in claim 22 wherein the phase-inversion support is skinless.

24. A substrate as recited in claim 23 wherein the phase-inversion support comprises nylon.

25. A substrate as recited in claim 24 wherein the phase-inversion support is charge-modified.

26. An assay in which the presence or quantity of an analyte is being detected by fluorescence at an emission waveband of light that results from the excitation of a fluorescent signal label on a polyamide support by a excitation waveband of light, the assay comprising:

a polyamide support; and

a plurality of opaque solids incorporated into the polyamide support, said opaque solids being substantially chemically non-reactive with the polyamide support and a size sufficient to be partially or completely within, or irreversibly bound, to the polyamide support, and quenching fluorescence due to the polyamide substrate at the excitation waveband or emission waveband, or both.

27. The assay as recited in claim 26 wherein the polyamide support is in the form of a membrane.

28. The assay as recited in claim 26 wherein the opaque solids are carbon particles.

29. The assay as recited in claim 28 wherein the carbon particles are less than 5 microns in size.

30. The assay as recited in claim 29 wherein the carbon particles are substantially uniformly distributed throughout the polyamide support.

31. The assay as recited in claim 28 wherein the carbon particles are partially incorporated into the polyamide support.

32. The assay as recited in claim 28 wherein the carbon particles are substantially wholly incorporated into the polyamide support.

33. The assay as recited in claim 28 wherein the substrate is charge-modified.

34. A method for preparing a substrate comprising a polyamide support irreversibly associated with opaque solids, such that substantially all of the polyamide surfaces are chemically and functionally available for binding of analyte; said method comprising the steps of:

formulating a casting dope comprising a solvent, one or more non-solvents, the opaque solids, and polyamide(s);

mixing and blending the casting dope to cause dissolution of the polyamide and opaque solids;

producing an opaque solids-filled phase inversion of casting dope;

casting a thin portion of the opaque solids-filled phase inversion casting dope;

quenching the cast portion of the opaque solids-filled phase inversion casting dope to form a substrate; and

drying the substrate.

35. The method of claim 34 wherein the opaque solids are carbon particles.

36. The method of claim 35 wherein the carbon particles are less than 5 microns in size.

37. The method of claim 35 wherein the carbon particles are substantially uniformly distributed throughout the polyamide support.

38. The method of claim 35 wherein the carbon particles are partially incorporated into the polyamide support.

39. The method of claim 35 wherein the carbon particles are substantially wholly incorporated into the polyamide support.

40. The method of claim 34 wherein the polyamide support is charge-modified.

41. A substrate comprising:
a phase-inversion support; and
a plurality of opaque solids that are substantially chemically non-reactive with the phase inversion support and intimately bound thereto, and/or partially/completely contained within the phase-inversion support, the substrate having substantially reduced reflectance.

42. The substrate of claim 41 wherein the phase-inversion support comprises polyamides.

43. The substrate of claim 41 wherein the opaque solids are pigments.

44. The substrate of claim 41 wherein the opaque solids are carbon particles.

45. The substrate of claim 41 wherein the phase inversion support has been charge-modified.

46. The substrate of claim 44 wherein carbon particles are less than five microns in size.

47. The substrate of claim 44 wherein the carbon particles are substantially uniformly distributed throughout the polyamide support.

48. The substrate of claim 44 wherein the carbon particles are at least partially incorporated into the polyamide support.

49. The substrate of claim 44 wherein the carbon particles are substantially wholly incorporated into the polyamide support.

50. The substrate of claim 44 wherein the polyamide has been charge-modified.

51. The substrate of claim 41 wherein the phase-inversion support is in the form of a membrane.

52. The substrate of claim 41 wherein the reflectance is substantially reduced from about 300 nm to about 700 nm.

53. The substrate of claim 50 wherein the substrate has a reflectance of no more than 50% of incident light at any wavelength within the range of wavelengths.

54. The substrate of claim 41 wherein the phase-inversion support is hydrophilic.

55. The substrate of claim 54 wherein the phase-inversion support is skinless.

56. The substrate of claim 55 wherein the phase-inversion support comprises nylon.

57. The substrate of claim 41 wherein the phase-inversion support is charge-modified.

58. A method for preparing a substrate comprising the acts of:
formulating a dope comprising a solvent, at least one non-solvent, opaque solids and at least one phase-inversion polyamide;
mixing and blending the dope to cause dissolution of the polyamide and opaque solids in the dope; and
producing an opaque solids-filled phase inversion membrane from the dope.

59. The method of claim 58 wherein the membrane producing act further comprises the acts of:
casting the dope;
quenching the opaque solids-filled phase inversion dope to form a substrate; and
drying the substrate.

60. The method of claim 59 wherein the membrane producing act further comprises the acts of:
irreversibly associating the membrane with the opaque solids such that substantially all of the membrane surfaces are chemically and functionally available for binding of analyte.

61. A substrate which provides little fluorescence from about 300 nm to about 700 nm comprising:
a phase-inversion support; and
a plurality of opaque solids that are substantially chemically non-reactive with the phase inversion support and intimately bound to, and/or partially/completely contained within, said phase-inversion support, the substrate having substantially reduced reflectance.

62. The substrate of claim 61 wherein the opaque solids are fibers.